

REMARKS

Entry of the foregoing and further and favorable consideration of the subject application are respectfully requested and such action is earnestly solicited.

As correctly stated in the Official Action, Claims 1-21 are pending in the subject application. Claims 6-15 stand withdrawn from consideration. Claims 1-5 and 16-21 stand rejected.

By the present amendment, Claims 1, 16, and 19 have been amended to incorporate the subject matter of Claim 2, 17, and 20, respectively. Claims 2, 17, and 20 have been canceled. No new matter has been added.

Objections to the Specification

The specification stands objected to for minor informalities on pages 4, 5, and 10. By the present amendment, the misspellings on page 4 and 10 have been corrected and the brackets on page 5 deleted, with parentheses inserted therefor. Withdrawal of this objection is respectfully requested.

Claim Objections

Claim 16 stands objected to for the misspelling of electrolyte. By the present amendment, this misspelling has been corrected. Withdrawal of this objection is respectfully requested.

Rejections Under 35 U.S.C. § 112, Second Paragraph

Claim 3 stands rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite as lacking antecedent basis. By the present amendment, Claim 1 has been amended to incorporate the subject matter of Claim 2. Applicants respectfully submit that such action provides antecedent basis for the recitation in Claim 3. Withdrawal of this rejection is respectfully requested.

Rejections Under 35 U.S.C. § 102

Claims 1, 16, and 19 stand rejected under 35 U.S.C. § 102(e) as allegedly anticipated by Nakura (U.S. Application Publication No. 2002/0015890). Without conceding to the merits of this rejection and solely in an effort to expedite prosecution, by the present amendment, Claims 1, 16, and 19 have been amended to incorporate the subject matter of Claims 2, 17, and 20, respectively. Claims 2, 17, and 20 have not been included in this rejection. Accordingly, withdrawal of this rejection is respectfully requested.

Rejections Under 35 U.S.C. § 103

Claims 1-5 and 16-21 stand rejected under 35 U.S.C. § 103 as purportedly obvious over Dai (U.S. Patent Application Publication No. 2003/0003369) in view of Nakura. Claims 2, 17, and 20 have been canceled by the present amendment, thereby mooting this rejection as it applies to these claims. However, the subject matter of Claims 2, 17, and 20

has been incorporated into Claims 1, 16, and 19 respectively. This rejection, as it applies to the remaining claims as amended, is respectfully traversed.

In order to establish a case of *prima facie* obviousness, three basic criteria must be met: (1) there must be some suggestion or motivation to modify the reference or combine reference teachings, (2) there must be a reasonable expectation of success, and (3) the prior art reference(s) must teach or suggest all of the claim limitations. *See* M.P.E.P. §2142.

The cited publications do not disclose or suggest each and every claim limitation. Neither Dai nor Nakura disclose a ternary pnictide phase of formula (I) as recited in the present claims.

Nakura discloses a lithium battery wherein the anode comprises a nitride of formula $\text{Li}_x\text{A}_y\text{Me}_z\text{N}$, which is not equivalent to formula (I) of the present claims. Rather an additional element A is required (boron, silica, or aluminum). Nakura emphasizes that the $\text{Li}_x\text{A}_y\text{Me}_z\text{N}$ nitrides are actually crystalline $\text{Li}_x\text{A}_y\text{N}$ which further comprise the metal Me. This "mixture" constitutes a single phase or a homogeneous amorphous phage. *See, e.g.,* paragraphs [0016] and [0026]. Thus, element A_2 is essential and not at all optional.

Dai describes lithium batteries which may contain as anode material an intermetallic pnictide of lithium and cobalt. Dai does not contemplate the possibility of replacing cobalt by another metal, particularly those of Groups IVa or Va. For example, neither titanium nor vanadium are either disclosed or suggested as an equivalent of cobalt. Thus, there is no motivation to combine the disclosures of Dai and Nakura and neither Nakura nor Dai disclose or suggest each and every element of the presently claimed invention.

Moreover, the presently claimed invention aims to provide an electrode material, especially useful as a negative electrode in rechargeable lithium cells and batteries, which have a good electronic conductivity and exhibit good charge-discharge cycle performances and mechanical properties. *See, e.g.*, specification at paragraphs [0005] and [0006] of the application. The presently claimed invention provides a novel and non-obvious solution to the difficulties observed in the art by implementing a specific ternary intermetallic pnictide of formula (I). This solution cannot be regarded as obvious in view of the disclosures of the cited art. Indeed, as noted above, Nakura does not disclose the present of element A as optional in the disclosed nitrides. Thus, Nakura does not provide any motivation or suggestion for one skilled in the art to expect that the performance of the $\text{Li}_x\text{A}_y\text{Me}_z\text{N}$ as described in paragraphs [0015] and [0020] may be observed in the absence of additional element A. On the contrary, Nakura requires the presence of the additional element. In this regard, paragraph [0023] emphasizes that intermetallic nitrides such as lithium/copper nitrides or lithium cobalt nitrides as described in Dai have lower capacity or lower cycle life.

Accordingly, the skilled person aiming to obtain a high capacity electrode material with a high cycle life would clearly not have implemented an intermetallic pnictide without the presence of additional element A. Nothing disclosed or suggested in the cited publications would have led the skilled artisan to made use of a specific ternary lithium/group IVa or Va transition element pnictide. The use of the specific compounds of formula (I) surprisingly leads to the specific advantages discussed in paragraph [0014] of

the subject application further highlighting the non-obviousness of the presently claimed invention.

Thus, the cited publications, either alone or in combination do not disclose or suggest each and every element of the presently claimed invention, nor does either publication provide any suggestion or motivation to enable the skilled artisan to arrive at the presently claimed invention. Moreover, the present invention evidences surprising results as discussed in detail in the specification. Accordingly, the presently claimed invention cannot be rendered obvious by the Dai or Nakura publications. Withdrawal of this rejection is respectfully requested.

Conclusions

From the foregoing, further and favorable consideration of the subject application in the form of a Notice of Allowance are respectfully requested and such action is earnestly solicited.

Attorney's Docket No. 004900-209
Application No. 10/015,603
Page 15

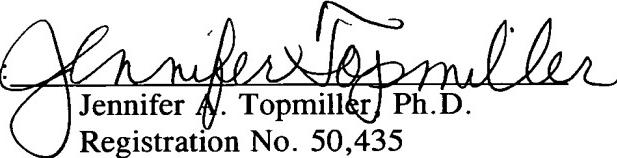
If there are any questions concerning this amendment, or the application in general, the Examiner is respectfully requested to telephone Applicant's undersigned representative so that prosecution may be expedited.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: December 5, 2003

By:



Jennifer A. Topmiller Ph.D.
Registration No. 50,435

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620